US006228527B1

(12) **United States Patent**
Medeiros et al.

(10) **Patent No.: US 6,228,527 B1**
(45) **Date of Patent: May 8, 2001**

(54) **MAGNESIUM SOLUTION PHASE CATHOLYTE SEAWATER ELECTROCHEMICAL SYSTEM**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/267,905**

(22) Filed: **Mar. 2, 1999**

(51) **Int. Cl.**[7] **H01M 6/34**; H01M 6/30

(52) **U.S. Cl.** **429/119**; 429/118; 29/623.1; 29/623.5

(58) **Field of Search** 429/118, 119; 29/623.1, 623.5

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(57) **ABSTRACT**

In accordance with the present invention, an electrochemical system is provided which comprises a plurality of cells, the cells being formed by spaced apart bipolar electrodes. Each of the electrodes is formed by an anode portion formed from a magnesium containing material and an electrocatalytic material joined to a surface of the anode. The electrodes are spaced such that the anode portion of one electrode faces the electrocatalytic material of the adjacent electrode. The electrochemical system also comprises a manifold system for introducing a seawater-catholyte solution into the spaces between the electrodes. An electrical connection is provided across the cells so as to initiate the reduction of the seawater-catholyte solution at the electrodes and to create electrical power. In a preferred embodiment, the seawater-catholyte solution is a seawater-hydrogen peroxide or seawater-sodium hypochlorite solution. A process for generating electrical power using the electrochemical system of the present invention is also described.

13 Claims, 2 Drawing Sheets